

RADHAKRISHNAIAH PARACHURU (KRISHNA)
Principal Research Scientist & Senior Academic Professional
School of Materials Science and Engineering
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I. EDUCATIONAL BACKGROUND

MS - Decision Sciences with a major in Applied Statistics, Georgia State University, Atlanta, GA 1993-95.

PhD - Textile Engineering, Indian Institute of Technology, New Delhi, India, 1976-80.

MS - Textile Technology, University of Madras, India, 1973-75.

BS - Textile Technology, University of Madras, India, 1968-73.

II. EMPLOYMENT HISTORY

12/1988 - 11/1993 Research Scientist - I
11/1993 - 11/2002 Research Scientist –II
11/2002 - 6/2010 Senior Research Scientist
7/2010 - Present Principal Research Scientist & Senior Academic Professional
School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA.

Teaching: Since 1992 undergraduate level instruction in such areas as yarn formation, weaving, knitting, nonwovens, physical testing and quality control using both theoretical and laboratory approaches. Academic responsibility shifted from full-time research to include both teaching and research as a result of consistently high teaching evaluations. Advised graduate students on dissertations and served as the committee chair of a dozen graduate students.

Research: Research includes planning and execution of several basic and applied research projects. Areas of research include fiber-product manufacturing and objective evaluation of the performance of fiber-based products such as: yarns, fabrics, garments, carpets and other miscellaneous fiber products. Coordination of the GT Kawabata Consortium involved work with numerous textile companies and over forty completed developmental projects. Defined new approaches for applying KES techniques for product and process optimization in the textile and allied industries. Guided US denim manufacturers in incorporating new product monitoring procedures for the attainment of superior quality finished products. Presented in nearly 100 national and international conferences. International recognition in KES allowed Georgia Tech to procure KES equipment worth \$4.5 million for a modest cost of \$24,000. The KES equipment acquisition enabled the creation of a new research laboratory, and truly unique research capabilities at Georgia Tech. Published several papers in leading research journals.

Coordinator of Public Service/Industry: Services rendered to the industry include testing of raw materials and finished products, technical trouble shooting, process optimization, design & development of new products, and assessment of new technologies.

MSE Safety Coordinator: Supervision of eight MSE undergraduate labs and safety monitoring of all 36 MSE labs involves formulation, training, and enforcement of safety policies/procedures.

5/1985 - 12/1988 Post-doctoral Research Associate
College of Textiles, N.C. State University, Raleigh.

Researched application of instrumental techniques for the objective evaluation of the handle and comfort properties of textile fabrics and design of state of the art fiber products with engineered functional performance for apparel and non-apparel end uses. Studied the relationships between the structural parameters of woven, knitted and nonwoven fabrics and their properties such as thermal insulation and conductivity, absorption and retention of moisture, softness and compressibility, surface roughness, surface friction, and mechanical behavior. Performed Fourier analysis of fabric surfaces to characterize surface texture, roughness and frictional properties. Subjective and objective evaluation of the handle, comfort, and aesthetic characteristics of woven and knitted fabrics made from ring, rotor, air-jet and friction spun yarns. Studied the influence of chemical and mechanical treatments on the softness, handle and comfort characteristics of apparel fabrics. Characterized the thermal protective performance of fabric composites made of high performance fibers. Comparatively evaluated the new yarn manufacturing systems and their products.

2/1984 - 7/1985 Professor of Textile Technology
7/1980 - 1/1982 Assistant Professor of Textile Technology
P. S. G. College of Technology, Coimbatore, India.

Taught graduate and undergraduate courses. Researched areas of structure and properties of yarns. Coordinated research activities at the graduate level and expanded and updated research facilities by obtaining grants from government and private funding agencies. Revised and updated graduate and undergraduate curricula.

1/1982 - 2/1984 Technical Manager
Telengana Textile Mills, Andhrapradesh, India.

Planned and commissioned the first fully air-conditioned state-of-the-art OE spinning mill.

7/1980 - 6/1985 Textile Consultant

Provided expert services to three different textile mills, including: trouble shooting, product and process optimization, planning for modernization and renovation, preparation of feasibility reports and interaction with mill technical staff.

1/1976 - 6/1980 Senior Research Fellow
6/1979 - 6/1980 Lecturer
Indian Institute of Technology, New Delhi, India.

Taught yarn manufacturing and textile testing courses at the undergraduate level. Conducted tutorials and laboratory classes.

5/1973 - 9/1973 Technical Trainee
Anglo-French Textile Mills Limited, Pondicherry, India.

Received shop-floor orientation in weaving and quality control departments.

III. CURRENT AREAS OF RESEARCH

Process Improvement

- Modeling and Optimization of Manufacturing Processes
- Business Data Analysis for Improved Profitability and Performance
- Building of Data and Model Based Decision Support Systems
- Appraisal of New Manufacturing Technologies and their Products
- Development of New Test Methods for the Evaluation of Raw Materials and End Products
- Application of Design of Experiments and Analysis of Variance Techniques for Process Enhancement

Product Development

- Development and Evaluation of Engineered Fibrous Products for Unconventional End Uses Involving Healthcare, Construction, Automotive, Filtration and other Industrial Applications
- Backward Engineering of Yarns and Fabrics from Established Databases to Achieve Process Efficiency and Cost Reduction
- Development of New Generation Apparel Products with Superior Performance Attributes

IV. RESEARCH AND CREATIVE SCHOLARSHIP

A. Research Program Proposals and Development

2009-10 CCACTI Proposal: Understanding the Factors Governing the Functional Performance of Healing and Shapewear Garments

2009-10 CCACTI Proposal: Development and Evaluation of Vapor Barrier Textiles for Energy Conservation and Environmental Control Purposes

2009-10 CCACTI Proposal: Evaluation of the Hot Nut Method of Flammability Measurement as an Alternative to the Pill (Methenamine)

2009-10 CCACTI Proposal: Development of Hydrophilic, Comfortable Fabrics from Hybrid Cellulosic-Nomex[®] Fibers

2008-09 CCACTI Proposal: Polypropylene-Rich Wickable Towels; Design and Functional Optimization

2008-09 CCACTI Proposal: Development and Evaluation of Vapor Barrier Textiles for Energy Conservation and Environmental Control Purposes

2008-09 CCACTI Proposal: Development of Hydrophilic, Comfortable Fabrics from Hybrid Cellulosic-Nomex[®] Fibers

2007-08 CCACTI Proposal: Development and Implementation of a Real Time Gin-Based Measurement System for Improved Quality of Georgia Cotton

2007-08 CCACTI Proposal: Developing New Enabling Tools to Enhance the State-of-the-Art in Carpet Yarn Heat Setting

2007-08 CCACTI Proposal: New Methods and Procedures to Predict the Creep Behavior and Dimensional Stability of Carpets

2007-08 NTC Proposal: New Generation Products with Carbon Nanotube Reinforced Fibers and Yarns

2006-07 NTC Proposal: Energy Absorbent Thermoplastic Nano-Fibrous Structures

2006-07 NTC Proposal: Developing an Artificial-Intelligence Model to Track Fiber Route Identity

2005-06 NTC Proposal : A Modeling Approach to Understand the Web-Forming and Handling Behavior of Staple Fibers

2005-06 CCACTI Proposal: Development and Promotion of Cotton-Rich Nonwoven Fabrics Through Melt-Blowing and Spun-Bonding Processes

2005-06 CCACTI Proposal: Defining the Degree of Set of Heat Set Carpet Yarns Through Compression and Bending Energy Measurements

2005-06 CCACTI Proposal: New Methods and Procedures to Predict the Creep Behavior and Dimensional Stability of Carpets

2004-05 NTC Proposal: A New Model for End-use Based Textile Product Appraisal

2004-05 CCACTI Proposal: Developing New Enabling Tools to Enhance the State of the Art in Carpet Yarn Heat Setting

2004-05 CCACTI Proposal: Evaluation of the Economic Benefits and Process Improvements of a Novel Yarn Conditioning Process

2004-05 CCACTI Proposal: New Methods and Procedures to Predict the Creep Behavior and Dimensional Stability of Carpets

2004-05 CCACTI Proposal: Functionally Enhanced Yarns and Fabrics Through Cost Effective Enzymatic Yarn Package Treatments

2004-05 GT-CDC Joint Research Proposal: Development and Evaluation of Novel Nonwoven Masks and Filters with Durable and Refreshable Antimicrobial Properties

2004-05 CCACTI Proposal: Development of a Pneumatic Shedding Device to Enhance Weaving

2004-05 CCACTI Proposal: Development of Generic Next Generation Carpet Construction

2004-05 CCACTI Proposal: Development of Novel Continuous Coloration Processes for Difficult-to-Dye Fibers

2004-05 CCACTI Proposal: Recovery and Re-Use of PVA Size in Towel Manufacturing Using Flash Evaporation

2004-05 CCACTI Proposal: Development and Implementation of a Real Time Measurement System for Improved Quality of Georgia Cotton

2003-04 NTC Proposal : Understanding the Web-Forming and Handling Behavior of Staple Fibers

2003-04 NTC Proposal: A New Approach to Specifying Textile Quality

2003-04 NTC Proposal: Development and Promotion of New Cotton-Based Unconventional Textile Products

2003-04 CCACTI Proposal: Creating Surface Designs on Carpets and Textile Fabrics Using Laser Beams

2003-04 CCACTI Proposal: Application of Permanent Antimicrobial Finishes on Carpets Using Plasma Technologies

2003-04 CCACTI Proposal: An Economically Viable and Environmentally Friendly Enzyme Process for the Preparation of Wool

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